SpaceLogger®.W100

User Manual

For the latest information and support please go to our website www.spacelogger.com

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FIGURES

TABLES

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1 INTRODUCTION

1.1 Overview

Figure 1: SpaceLogger.W100

The SpaceLogger.W100 data logger is an ethernet connected logger for enabling the simultaneous live viewing and recording of data from two wind, weather or environmental sensors on WeatherFile.com.

Compatible with wind, weather and environmental sensors from the major suppliers, the SpaceLogger W100 logger provides RS232 and RS422/RS485 inputs for serial data.

In the event of a network outage, for example when used in conjunction with a 4G modem, data is stored on the SD card and is automatically transferred to WeatherFile.com on re-connection.

Averaged values with min and max readings during a specified period are recorded in daily files. In addition, raw data can optionally be stored in a separate daily file with a time and date stamp.

Email alerts can be set up by the user on WeatherFile.com to warn when key data parameters are exceeding defined levels.

1.2 Applications

Typically the SpaceLogger.W100 can be used for data logging in the following applications:

• Weather monitoring/warnings
• Environmental monitoring
• Dust, noise and vibration monitoring
• High rise building external areas
• Aviation operations
• Sports & outdoor activities
• Temporary structure monitoring
• Construction industry H & S
• Education and Research projects
• HVAC monitoring
• Bridges & tunnels

1.3   Document revision history

Issue	Date	Description
1	23-Oct-2020	Initial release for W100, based on software version 3.4.0

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Our products are in continuous development and therefore specifications may be subject to change and design improvements may be implemented without prior notice. Please visit our web site www.r-p-r.co.uk for the most up to date information on our products.

1.3   Document revision history

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2 QUICK START: EASY STEPS TO DATA LOGGING

The following table provides a quick guide to the steps required to start logging data from a wind sensor.

❶	Connect RS232/RS485 inputs	Sections 3.1.2, 3.1.3
❷	Insert MicroSD card	Section 3.1.5
❸	Connect Lan cable to ethernet port	Section 3.1.4
❹	Connect Power to the W100	Section 3.1.1
❺	Use Browser to configure the device	Section 4
❻	View the Local Display on a PC	Section 5
❼	Browse from PC to view, analyse or download data	Section 6

3   Interfaces

The following images provide a simple guide to the physical interfaces of the SpaceLogger.W100. Please refer to the sections indicated for further details.

|			
	Data and Lan Ports		Notes:
	DB9 Connector. See 3.1.2		The DB9 connector can be used for RS232 with hardware flow control, or RS485.
	LAN Connector See 3.1.4		For connection to a Local Area Network
	Data and Power Ports		Notes:
	14 Way Connector See 3.1.3		The 14 way connector provides an alternate set of connections for RS232, RS485 and power.
	USB Power Connector See 3.1.1		The microB USB connector can be used to power the device.
	MMI, uSD and Battery		Notes:
	Push Button See 3.3.1		Push Button to prepare for uSD card ejection
	uSD Card See 3.1.5		Accepts micro SDHC cards from 4GB to 32GB
	Data/Card Status Led See 3.2.1		
	Battery Holder See 3.1.6		
	Network Status LED #2 3.2.1		

Figure 2: Interface Guide

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3.1 Connections
3.1.1 Power

The logger is powered using a 5 V DC USB power supply unit via a USB micro connector, or via the 14 pin connector using 5V DC.

⚠ **Warning:** **Supply power either via the USB connector, or via the 14 pin connector, but NEVER both at the same time. Damage may result to the logger if power is connected via both connections at the same time.**

⚠ **Warning:** **All GND connections are common and so damage to the logger may result if they are connected to different voltages.**

3.1.2 DB9

The DB9 connector can be used for both RS232 or RS485 signal I/O. All the signal connections on this connector are for Port 0.

DB9 Pin#	Signal description RS232	Signal description RS485/RS422
1	No Connection	No Connection
2	RS232 input to logger	485 RX-P
3	RS232 output from logger	485 TX-P
4	No Connection	
5	Power GND / Signal GND	Power GND / Signal GND
6	No Connection	No Connection
7	RS232 RTS output from logger	485 TX-N
8	RS232 CTS input to logger	485 RX-N
9	No Connection	No Connection

Table 1: DB9 Pin Connections

3.1.3 14way Connector

The 14 pin connector can be used instead of the DB9 connector in situations where it is preferable to terminate a bare cable, rather than use the DB9 connector.
The 14pin connector can be removed from the W100 to make cable connections easier in-situ. It will only fit in the W100 in one orientation.
When inserted into the W100, Pin 1 is adjacent to the USB connector.

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Pin 1, adjacent to USB connector.
(picture for orientation purposes only)
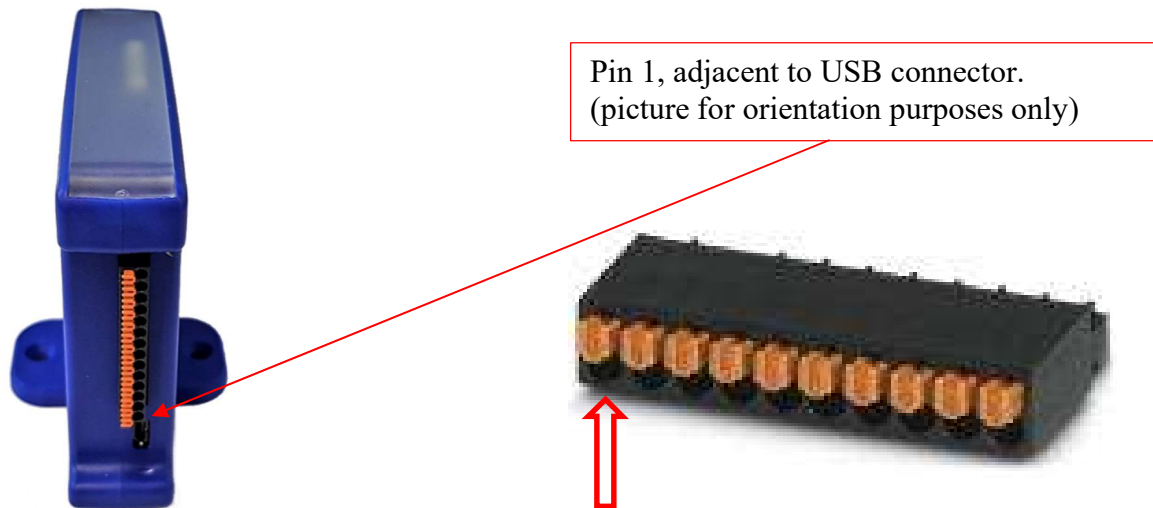
Figure 3 : 14 Pin Connector & Orientation

Pin #	Purpose	Direction wrt W100	Notes
1	+5V	Power	
2	Power Ground		
3	EXT IO 2	IN/OUT	Defaults to output
4	EXT IO 1	IN/OUT	Defaults to output
5	Signal Ground		
6	Port1: RS232 TX	OUT	
7	Port1: RS232 RX	OUT	
8	Signal Ground		
9	Port0: RS232 TX / 485 TX-P	OUT	Default is RS232
10	Port0: RS232 RTS / 485 TX-N	IN	Default is RS232
11	Signal Ground		
12	Port0: RS232 RX/ 485 RX-P	OUT	Default is RS232
13	Port0: RS232 CTS / 485 RX-N	IN	Default is RS232
14	Signal Ground		

Table 2 : 14 Pin Connector Signals

Note that the 14 pin connector allows access to a secondary serial port (Port 1) and some additional I/O, for future expansion purposes.

3.1.4   RJ45
The W100 provides a standard 100Base-T ethernet connection and does not support auto crossover. A straight through (non crossover) patch cable to the network is required if the switch/router the W100 is connected to does not support auto MDI-X.

3.1.5   SDHC
The W100 support High Capacity microSD cards (SDHC) with a capacity of 4Gb to 32Gb. It does not support SDXC cards.
Cards should be inserted into the W100 ensuring the correct orientation as illustrated below.
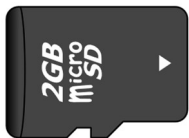
Insert this edge into the W100. Contacts should be facing the nearest edge of the W100.

3.1.6   Battery

The W100 can be used with a CR2032 battery to provide back up of the real time clock in applications where it will not be used with a LAN connection and may be intermittently powered. In normal use where a connection to the internet is expected, it is not necessary to fit a battery. When changing the battery, ensure that the battery is replaced with the same type of battery and in the same orientation as supplied.

Warning: Do Not insert the battery holder into the W100 without a battery fitted. It may not be possible to remove the battery holder from the W100 without a battery in place.

3.2   Indicators
3.2.1   Front Panel LEDs

Data/Card Status

State	Meaning
Off	No data being received, SD card inserted
Flashing RED	Data being received but not decoded, SD card inserted
Flashing Green	Data being received correctly, SD card inserted
Solid Green	Data being received at high message rates
Solid RED	Data being received, SD card ejected

Table 3: Data/SD Card Indications

Network Status

State	Meaning
Off	
Flashing RED	No LAN connection or no IP address assigned
Flashing Green	IP address assigned, no connection to WeatherFile
Solid Green	IP address assigned, connection to WeatherFile established
Solid RED	Reserved for future use

Table 4: Network Status Indications

3.2.2   RJ45 LEDs

A single Green LED on the RJ45 connector is provided to indicate if the LAN port has a connection to a router/switch, and if any traffic is being sent or received.

In normal operation with a LAN connection established, this LED will be illuminated and will blink intermittently.

3.2.3   Buzzer

The W100 provides audio feedback at certain times for basic indications of operation

State	Meaning
Double Beep	W100 has been power cycled, software reset or microSD card inserted

State	Meaning
Continuously on	Error indication. Typically, either the SD card has been ejected without pressing the front panel button, or data is being received without an SD card inserted.

Table 5: Buzzer Indications

3.3   Buttons
3.3.1   Front Panel Button
The push button should be used to initiate MicroSD card ejection, in order to ensure that all data has been flushed to the SD card and the file system unmounted before it is removed. This is to avoid potential corruption of the file system.

Once pressed, the Data/Status will start flashing RED to indicate that the SD card can be removed. If the SD card is not removed within 10 seconds, the W100 will presume that the button press was spurious and will remount the file system and return to normal operation.

3.4   Browser Interface
A web browser is the main interface used to for system configuration, data display and data retrieval. This is detailed further in the following chapters

3.5   Mounting
The logger has a spring-loaded catch so it can be mounted on standard 35mm DIN rail or using the mounting plate screwed to a suitable flat surface.

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4   Configuration

In order to configure the system, open a web browser and enter the devices IP address in the address bar. The SpaceLogger Launcher program can be used to find the devices IP address on a Windows PC.

4.1   Main Index

The main index page provides a directory listing of the root of the SD card, together with links to the Local Display, Configuration and System Information pages.
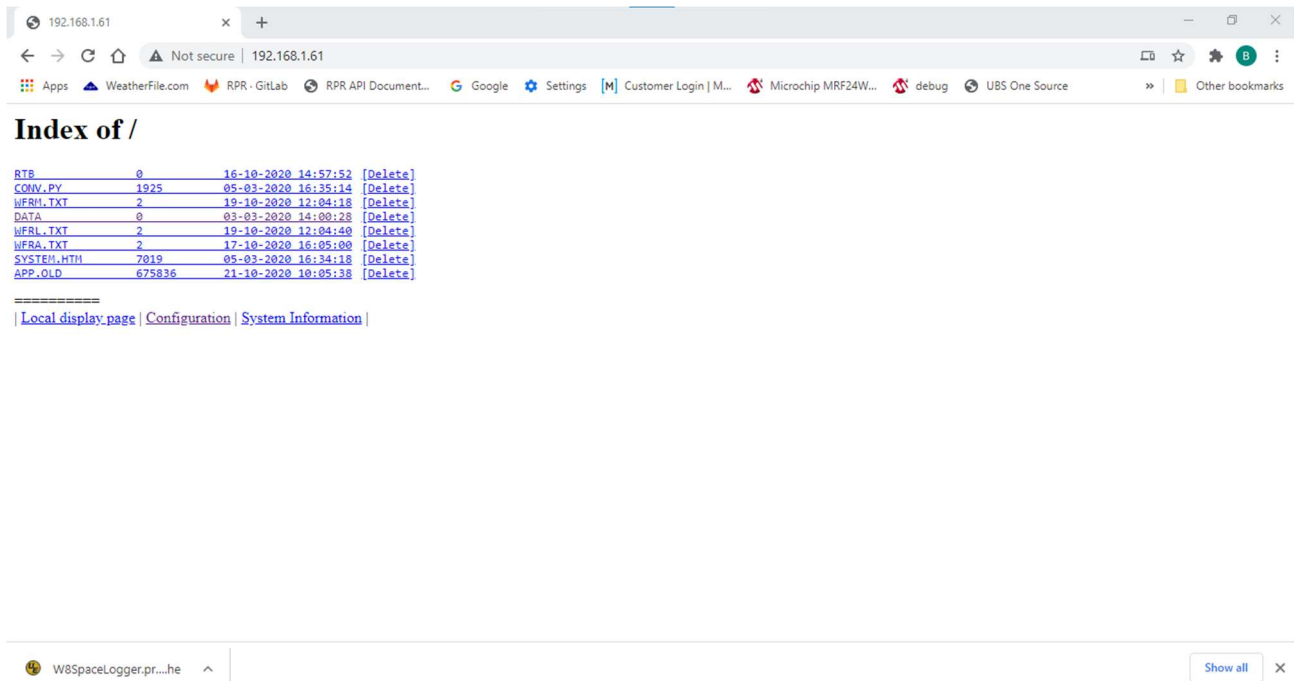

Figure 4: Web Browser Main Index

4.2   Configuration

Clicking on the Configuration link will provide the basic configuration page. This page provides further links to configuration topics, and also allows the configuration to be downloaded to file, or uploaded from a file. The following sections provide more detail on the configuration topics.
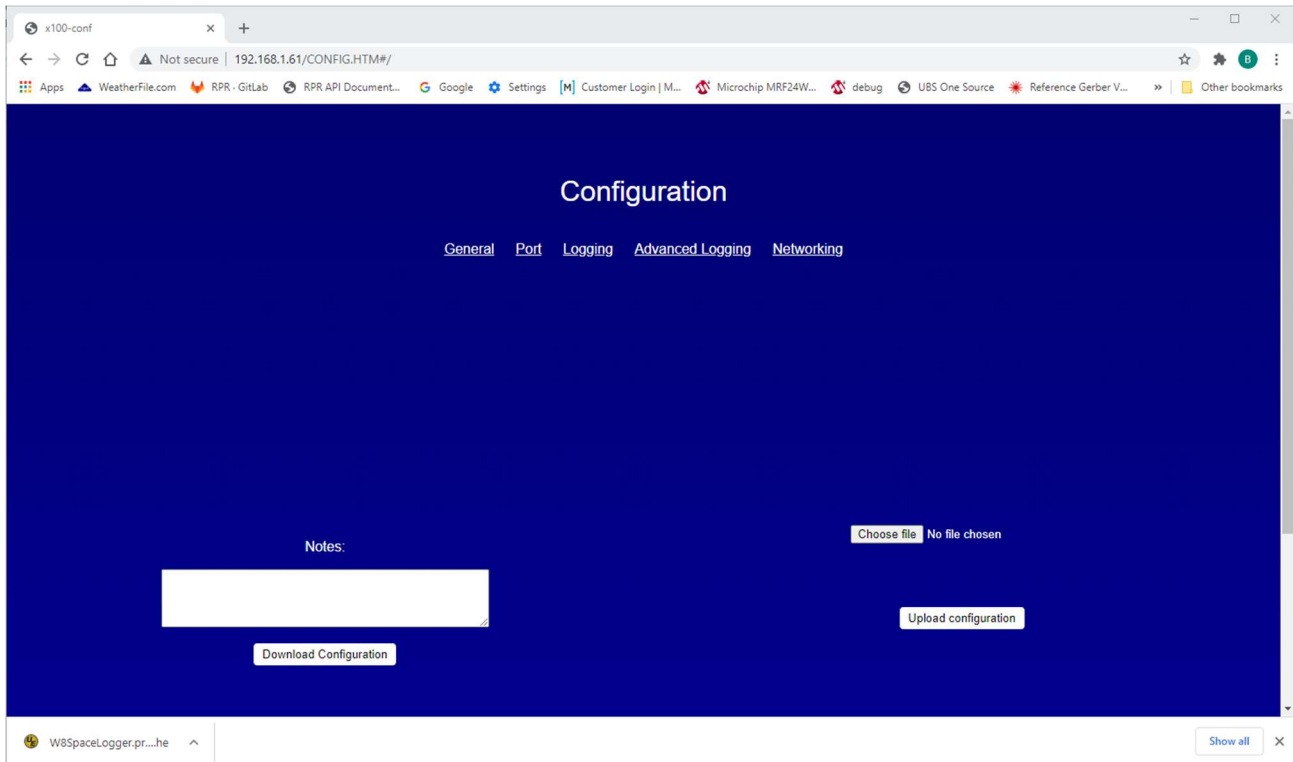
Figure 5: Top Level Configuration Page

4.2.1 General

The general page allows access to a few basic settings.

- The name of the device, as shown in the Local Display, can be configured
- The URL of the desired Simple Network Time Server (SNTP) can be configured.
- SNTP can be disabled, for instance if time will be taken from a sensor including a GPS
- Support for the Power Control and Management Board, used in the WeatherFile Connection Unit, can be enabled/disabled.
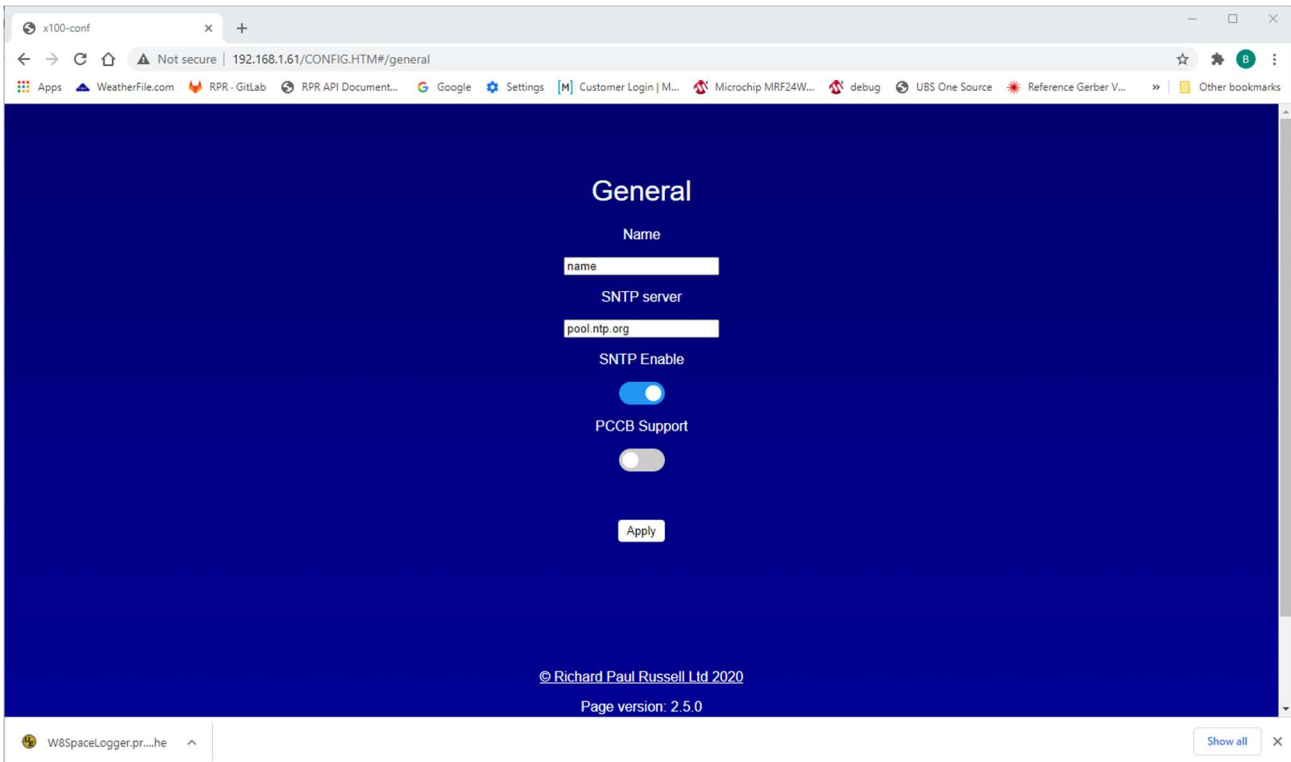
Figure 6: General Configuration Page

4.2.2 Port Settings

The Port settings page allows the characteristics of Port 0 and Port 1 to be defined.

Port 0 is the primary serial interface accessible via the DB9 or 14 pin connectors, and supports RS232 or RS485.

Port 1 is the secondary serial interface and is only accessible via the 14 pin connector, supporting RS232 with no hardware flow control.

Configure the desired settings and click apply for the relevant port.
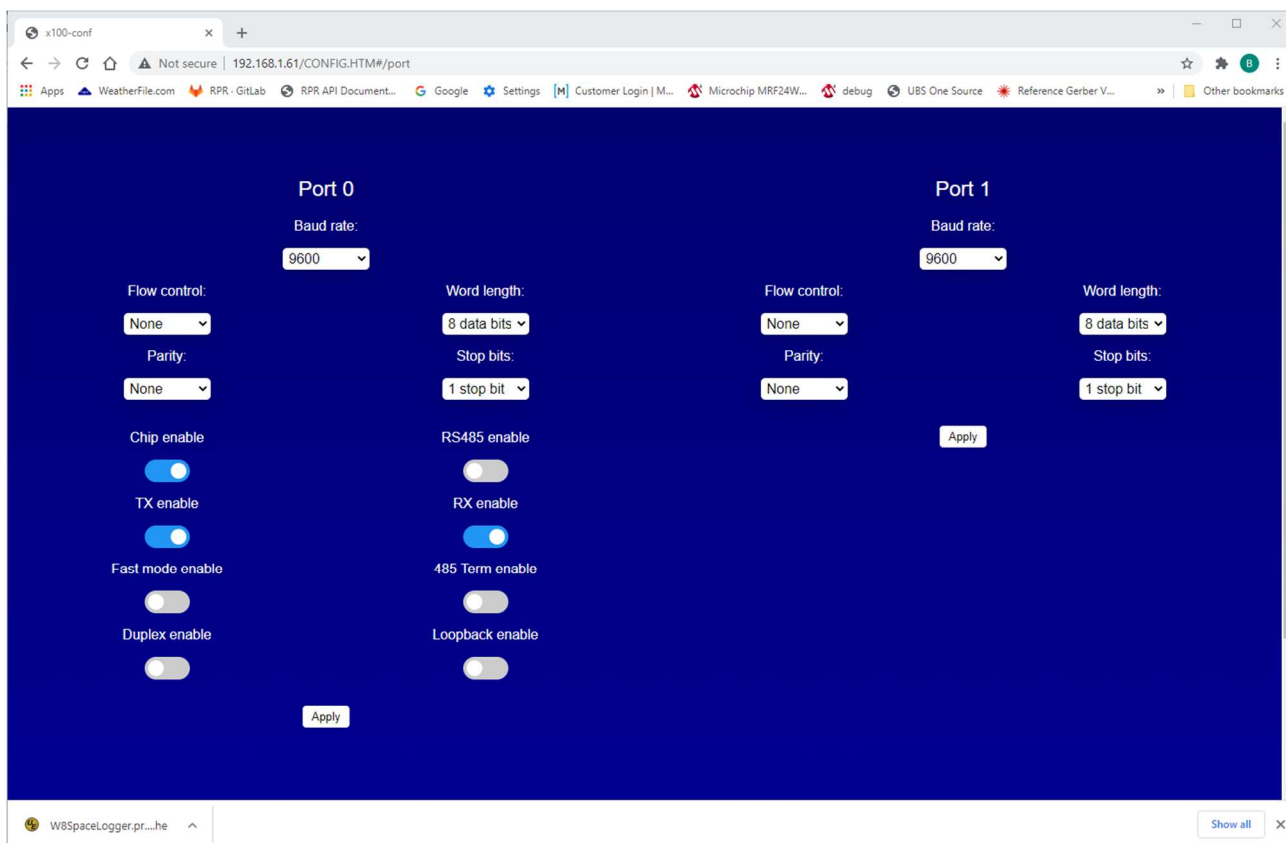
Figure 7: Port Settings Configuration Page

Port Options

Control	Values	Port(s)
Baud Rate	1200 baud to 115200 baud	0 & 1
Flow Control	All (RTS & CTS), RTS, CTS, NONE	0
Word Length	8 or 9 data bits	0 & 1
Parity	Odd, Even, None	0 & 1
Stop Bits	0.5, 1, 1.5 or 2 stop bits	0 & 1
Chip Enable	On or Off	0
RS485 Enable	On (RS485) or Off (RS232)	0
TX Enable	On or Off	0
RX Enable	On or Off	0
485 Term Enable	On or Off. On adds a termination to the RS485 signal lines	0
Duplex Enable	On or Off. On for full duplex, Off for Half Duplex	0

Table 6: Port Configuration Options

4.2.3   Logging

The logging screen enables the system to be configured to accept data from a range of sensors using the default configuration for that sensor.

Note that the physical interface to the sensor must still be configured appropriately.
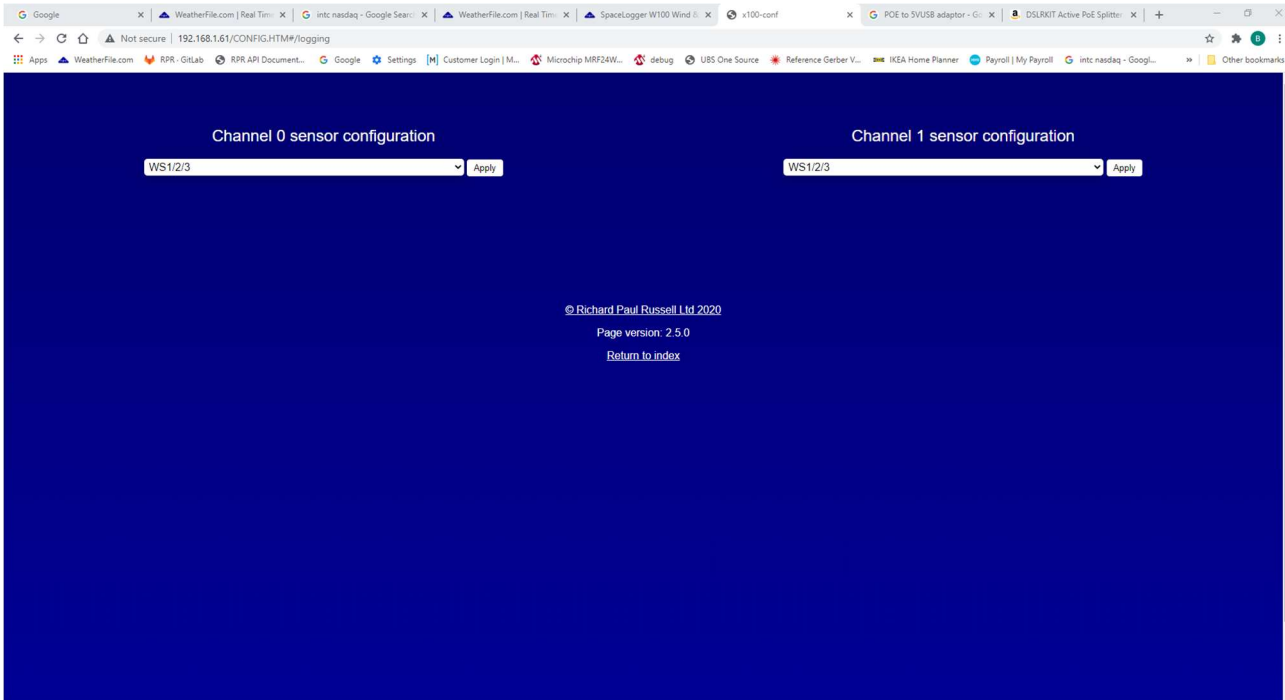
Figure 8: Basic Sensor Configuration

4.2.4   Advance Logging

The advance logging page provides more control over the specification of the expected input and output data.
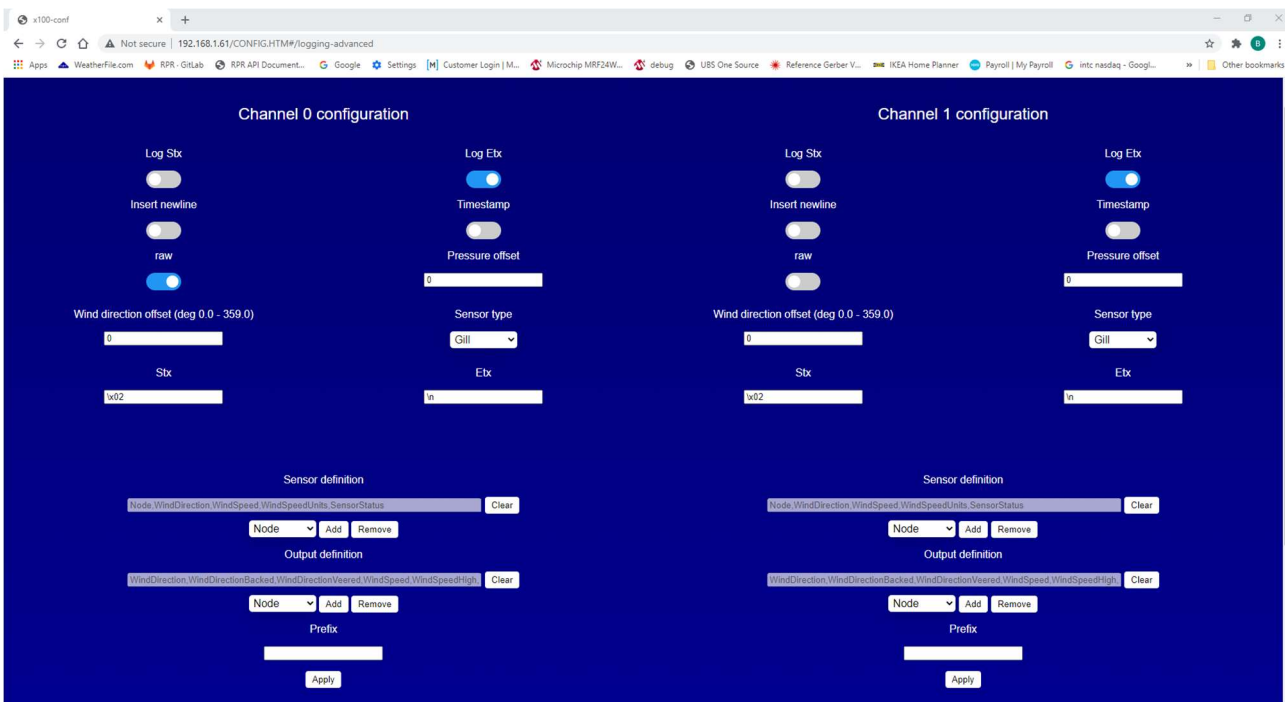

Figure 9: Advanced Sensor Configuration

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Control	Purpose/Meaning
Log STX	If enabled, the STX character is captured for logging/decoding
Log ETX	If enabled, the ETX character is captured for logging
Insert newline	If enabled, a new line is inserted in the log files after each capture.
Timestamp	If enabled, a timestamp is added to the logged raw data
Raw	Enables or disables logging of any raw data captured
Pressure Offset	Adds an offset to pressure readings, to offset for height
Direction Offset	Adds a direction offset, in degrees, to adjust for the sensor not pointing due North (true)
STX	The start of sentence character. 0x02 for a Gill sensor, $ for an NMEA sentence
ETX	The end of sentence character. 0x03 for a Gill sensor, carriage return line feed (\r\n) for an NMEA sentence
Sensor Definition	This defines the input sentence in terms of the list of expected parameters
Output Definition	This defines the parameters that will be output to WeatherFile and will be included in the averaged data
Prefix	Defines a prefix added to each average data point saved to file. Typically, this is an abbreviation of the station name followed by a comma e.g. Lym,

Table 7: Advanced Sensor Configuration Options

The following table provides a list of the parameters that can be configured as part of the sensor or output definitions.

Sensor Parameter	Use
None	Used to indicate that the field should be ignored
Node	Node Letter/NMEA Talker & MSG type
WindSpeed	Wind Speed, defaults to m/s
WindSpeedLow	Minimum Windspeed
WindSpeedHigh	Maximum Windspeed
WindSpeedUnits	Windspeed Units (Knots, MPS, KPH etc)
WindDirection	Wind direction, in degrees
WindDirectionBacked	Maximum wind direction backed (anticlockwise) from average
WindDirectionVeered	Maximum wind direction veered (clockwise) from average
SensorStatus	Sensor Status indication
Samples	Number of samples recording during an average interval
Pressure	Pressure in HectoPascals / millibar
Humidity	Relative Humidity, percentage to 1 decimal place
Temperature	Temperature to 1 decimal place
Dewpoint	Temperature to 1 decimal place
PRT	Temperature to 1 decimal place, from a Platinum Resistive Thermometer
Solar	Solar Radiation, in W/m^2
Precipitation	Total precipitation within the averaging interval, in mm
AnalogOne	Analog Channel One
AnalogTwo	Analog Channel Two
DigitalOne	Digital channel One, typically used for tipping bucket applications
VSupply	Sensor voltage to 1 decimal place
HeadingTrue	True heading, degrees to 1 decimal place
Latitude	NMEA GPS latitude
Longitude	NMEA GPS longitude
LatitudeNS	NMEA GPS latitude North or South
EWest	NMEA GPS longitude East or West
LatLngGgl	GPS position in "Google" format as ±DD.DDDDDD:±DD.DDDDDD:HH.HH Note: Height information is ignored
GPSDateTime	GPS date in DDMMYY format

Table 8: Sensor & Output Dropdown Menu Options

4.2.5 Networking

The Networking page configures parameters related to the transmission of data to WeatherFile.

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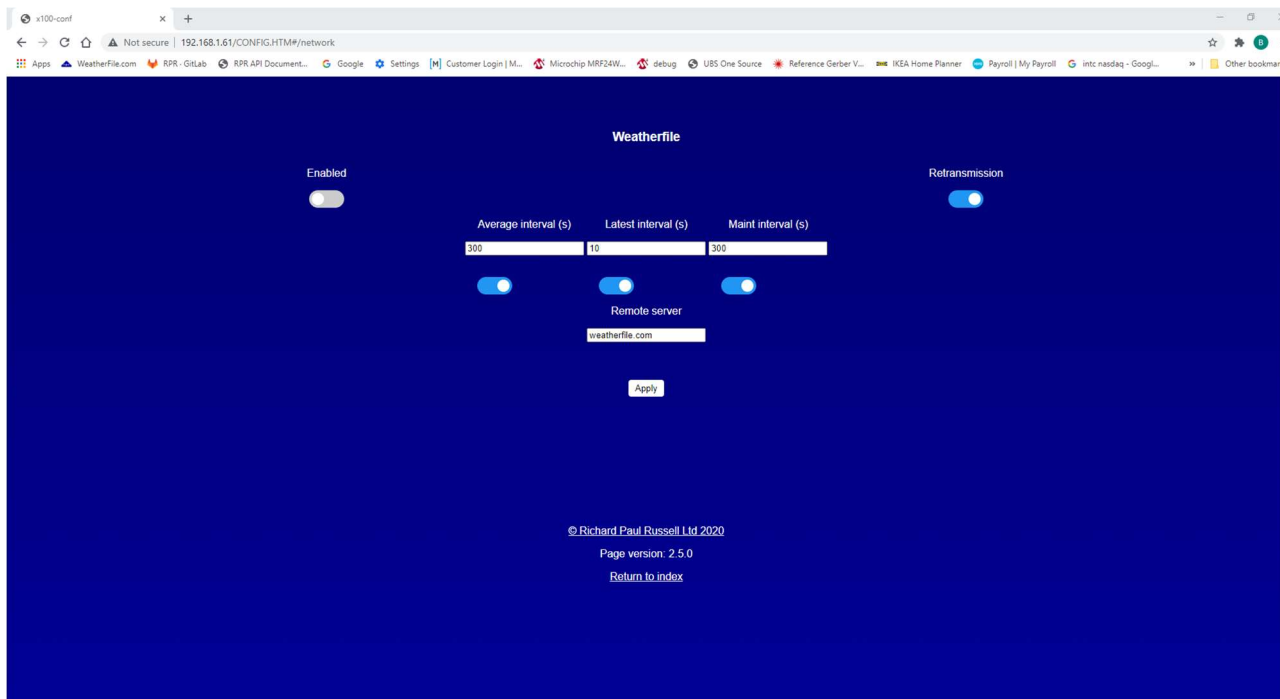
Figure 10: WeatherFile Options

Control	Purpose
Enabled	If enabled, data will be sent to WeatherFile at the intervals defined below
Retransmission	If enabled, average data will be stored for retransmission if the logger is unable to contact the remote server. Only applicable if transmission to WeatherFile is enabled
Average Interval	Sets the interval, in seconds, over which sensor data is averaged.
Latest Interval	Sets the interval, in seconds, between transmission of the most recent 3 second vector averaged sensor data.
Maint Interval	Sets the interval, in seconds, between maintenance messages. Maintenance messages can be used to initiate remote software updates and provide some basic system information
Remote Server	This is the URL of the WeatherFile server. This setting should not be changed.

Table 9: WeatherFile Options

4.3 System Information

The principal purpose of the System information page is to provide information about the specific hardware, such as its MAC address, hardware version, serial number, software version and software type.

In addition, this page can be used to perform software updates, or to upload new files (such as new web pages) to the SD card.
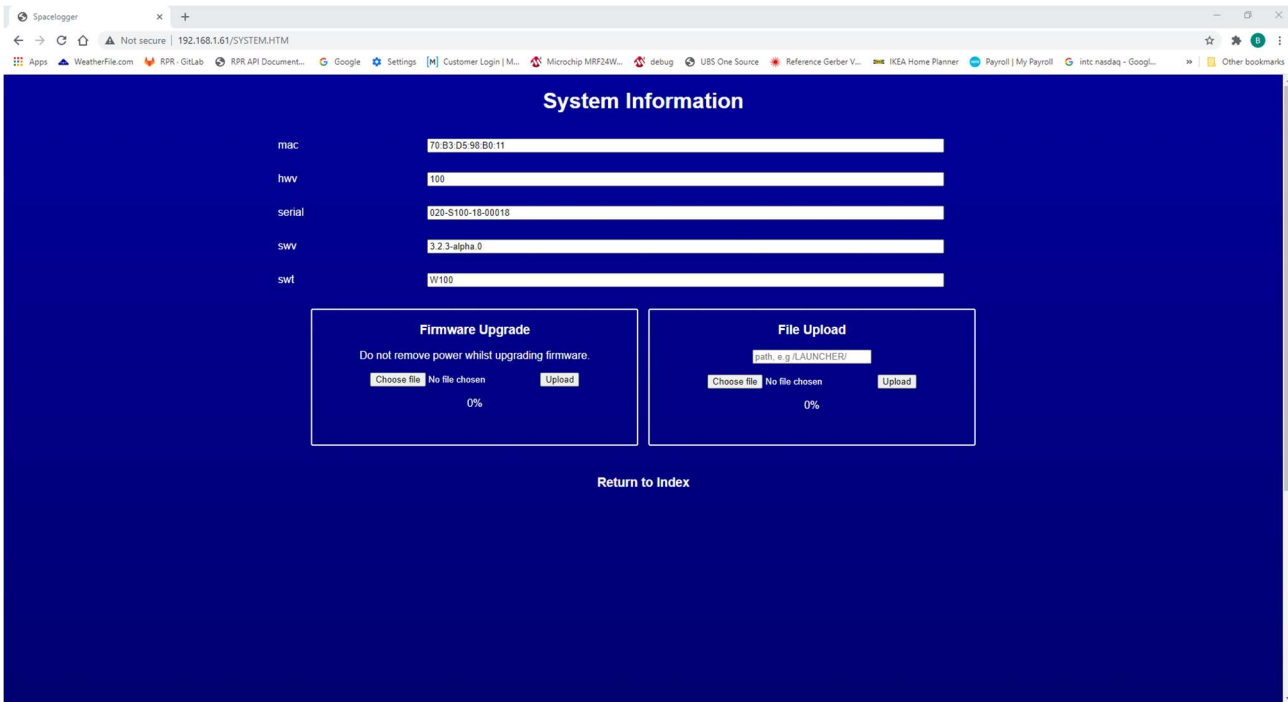
Table 10: System Information

5   Local Display

The Local Display provides a means to view the data being provided from the sensor on Port 0. It will automatically adjust to present the range of parameters being provided by the sensor.
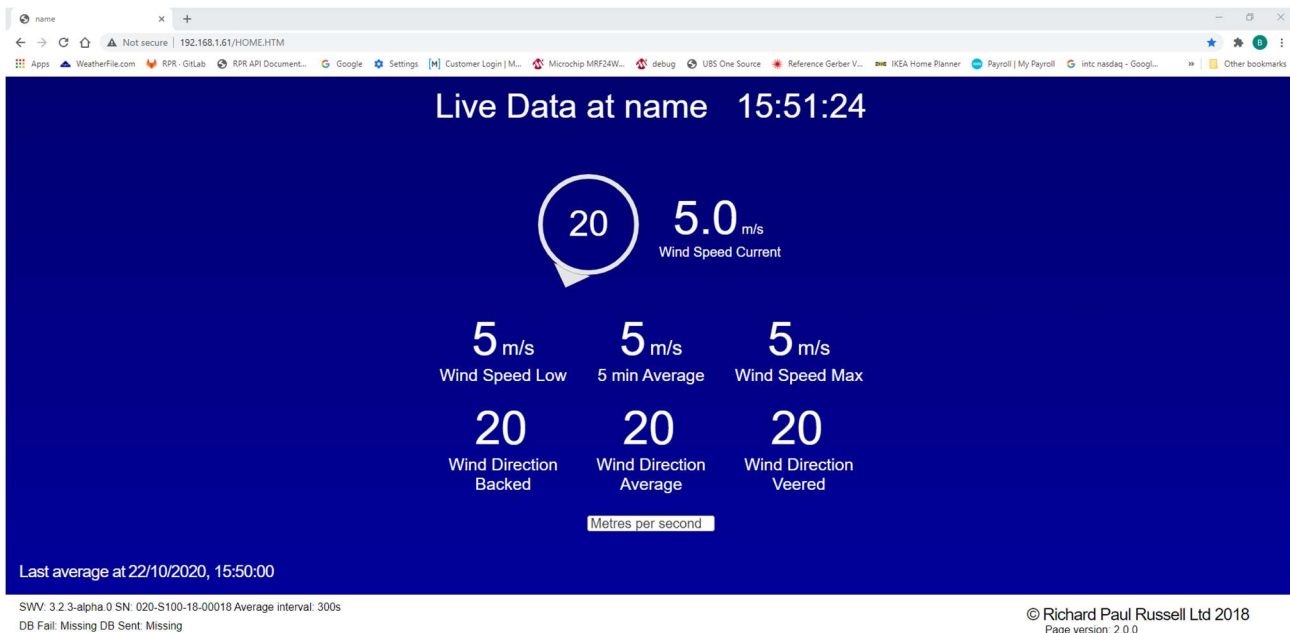
Table 11: Local Display

5.1   Title Bar

The Title bar will display the devices name as configured in section 4.2.1. It also displays the current time, as provided by the browser.

5.2   Live Wind Direction

The current wind direction is updated approximately every 2seconds, from the most recent 3 second vectored average reading. The wind direction is displayed in the centre of the icon, with a 'wind sock' style representation of the direction which rotates around the display.

5.3   Live Wind Speed

The current speed is also updated approximately every 2seconds in the same manner as the wind direction.

5.4   Average Data

Below the current readings is a section that will update whenever the average data changes. For wind speed data, this will display the low, average and high wind speed readings. For wind direction data, this will display the backed (anticlockwise), average and veered (clockwise) wind directions. Any further parameters, such as temperature, humidity etc will be displayed below the wind data, if available.

5.5   Display Options

The display options allows the wind speed units to be selected as either meters per second, kilometres per hour, miles per hour or knots.

6   Data Logging

Data that is ingested by the W100 will be averaged and logged to a daily average file. Additional, if desired, the raw data can also be logged.

6.1   Average Log Files

The Average log file is created on a daily basis for each day in which a valid sentence is received from the connected sensor.

The data will be averaged over the interval specified, naturally aligned. Each entry is time stamped (if enabled), and a prefix may also be specified. The file name format is YYYYMMDD.CSV

Each file is created with a header line to indicate the data in the respective column.

Heading	Description	Units
DT	Date	DD/MM/YY
TM	Time	HH:MM:SS
WDB	Backed wind direction (anti-clockwise)	Degrees
WDA	Average wind direction	Degrees
WDV	Veered Wind direction (clockwise)	Degrees
WSL	Minimum wind speed	As per WSUNITS
WSA	Average wind speed	As per WSUNITS
WSH	Maximum wind speed	As per WSUNITS
HPA	Average pressure	HPa
RA	Average relative humidity	%
TA	Average ambient temperature	ºC
TD	Average dewpoint temperature	ºC
PRT	Average Platinum Resistive Thermistor temperature	ºC
A1	Analog Input 1	n/a
A2	Analog Input 2	n/a
D1	Rainfall (Digital input 1)	As per PT
Sol	Average solar radiation	W/m^2
PT	Rainfall, total within averaging interval	mm
VLT	Average sensor voltage	Volts
SMP	Number of samples in the average interval	Samples

Table 12: Average File Column Headings

6.2   Raw Log Files

If enabled, the raw log files will be created on a daily basis and will contain a record of the sensor data that was ingested by the W100 for that day.

If timestamping has been enabled, each record will be prefixed with a timestamp.

If a prefix has been defined, this will be prepended to the raw data.

6.3   Directory Structure

The basic directory structure is shown below. Files are stored in the Data directory in sub directories per port, per year, per type and then on a per day basis, as shown below.

6.4   Viewing Log Files

Using the SpaceLogger Launcher software it is possible to connect to a SpaceLogger.W100 and view both the average and raw data files stored on its MicroSD card without needing physical access to the unit. When the SpaceLogger Launcher is run it will display a list of all the SpaceLogger devices found on the local network (that the PC is connected to).
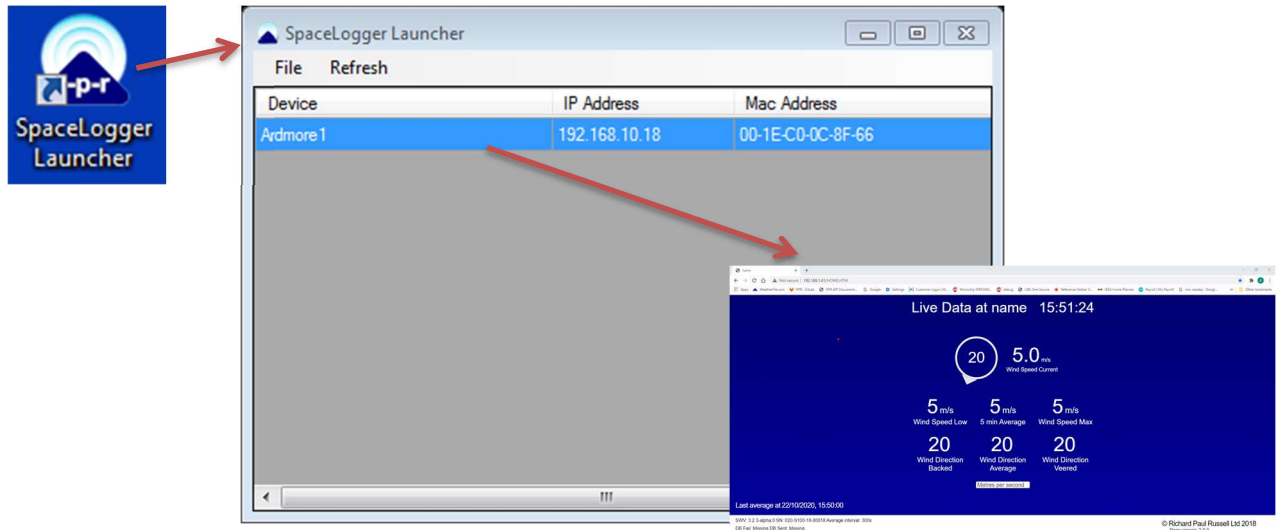
Figure 11: SpaceLogger Launcher

Double click or right click on a listed device to view the recorded data. The PC's default web browser will be opened. The browser will be opened on the Local Display page of the SpaceLogger.W100 as shown in Figure 11 above. Click on the Home icon to navigate to the root directory listing. Alternatively, if the IP address of the SpaceLogger.W100 is already known, this may be directly typed into a web browser's address bar to go directly to the root directory listing.

From the root directory, navigate to the desired log file. The directory structure is shown below in Figure 12. Double click on the relevant file to open or download the file (browser dependant)
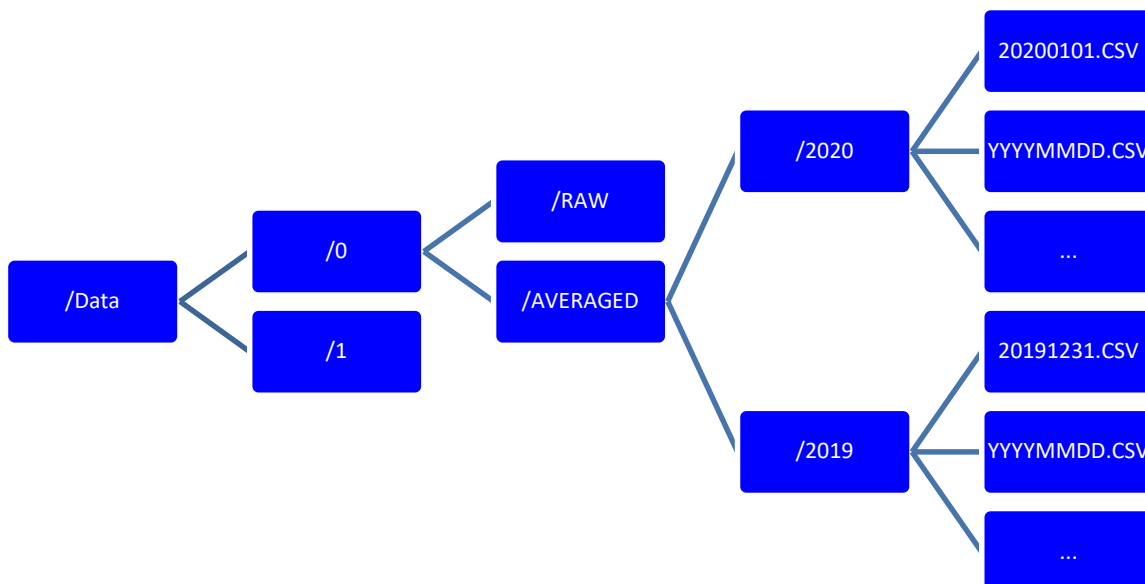
Figure 12: Directory Structure

7 Maintenance

The SpaceLogger.W100 does not require any routine maintenance in normal use, however certain consumable items should be replaced as and when required.

7.1 Consumables

7.1.1 SD Card

It is recommended that the SD card should be replaced before the SD card if full, to ensure that no data is lost. By default, the W100 will not delete data, hence the SD card will eventually fill up. Typically, it should not be necessary to replace the card more frequently that once a year. Please contact RPR at support@r-p-r.co.uk for further guidance if necessary.

7.1.2 Battery replacement

If a SpaceLogger.W100 is to be stored for a period of 6 months or more with the battery installed, it is recommended that the battery is changed when next deployed.

7.2 Updating the W100 Software

From time to time, new features may be added to the SpaceLogger.W100 software. To take advantage of these features the new software will need to be installed. RPR will provide the new software.

7.2.1 Automatic Software Updates

If the SpaceLogger.W100 is connected to the public internet, then it may be upgraded remotely provided Maintenance Messages are enabled. Please contact RPR at support@r-p-r.co.uk

7.2.2 Manual Software Updates

To update the software manually, it will first be necessary to obtain a new software binary from RPR ltd. Please contact support@r-p-r.co.uk.

Once the new binary has been obtained, browse to the SpaceLogger.W100's System information page.

In the Firmware Upgrade section of the page, click on the 'Choose File' button and browse to the supplied software binary file and select it. Now click on the upload button. The file will be uploaded and the software updated. A double beep from the unit will indicate that the process is complete.

Note: All other connections to the W100, such as the Local Display etc, should be closed while the software update is in progress.

8   SPACELOGGER.W100 SPECIFICATION

Physical	Dimensions	Width: 100 mm Height: 80 mm Depth: 22 mm
	Weight	100g
	Enclosure materials	ABS with polycarbonate cover
	Mounting	35mm DIN rail mount, plus optional abs base plate mount
Serial Data Input	Number of channels	2
	Transmission standard	Port 1: RS232 or RS422/485, Port 2: RS232
	Transmission speed	2,400 to 115,200 baud
	Flow control	Port 1: Hardware (RTS/CTS) or software flow control
	Connection	14-way pluggable terminal block, 9-way D-type
LAN Connectivity	Wired connection	RJ45 connector 10/100 Base-T
Switch output	Switch output	2 programmable per channel
Data Storage	Data Storage Card	Removable micro SDHC/SDXC card
	Data Capacity	Capacity of micro SDHC/SDXC card installed (max. 32GB) 8GB micro SDHC supplied as standard
	Card removal	Buffer purge button
Audible / Visual Indicators	LED Indicators	Micro SDHC card status: Bi-colour red/green Data/LAN connectivity status: Bi-colour red/green
	Audible Bleeper	Status alert
Real Time Clock	Accuracy	±40 ppm at 25 ºC
	RTC back-up battery	CR2032
Power	Power requirement	5 Vdc ±10%
	Current at 5Vdc	200 mA typical
	Connection	Micro USB connector, 14-way pluggable terminal block
Environmental	Temperature Range	Operating: -25 ºC to +70 ºC Storage: -40 ºC to +70 ºC
		CE marked - EMC directive 2014/30/EC
	Emissions	EN 55032:2015 CISPR 32:2015, Class B | EN 60945:2002 CISPR 16-1:1999, Class B | EN 61000-3-2:2014 Class A | EN 61000-3-3:2013 FCC/CFR 47: Part 15:2017 ANSI C63.4:2014, Class A Canadian Standard ICES-003:Issue: CISPR 22:2008
	Immunity	EN 55024:2010 | EN 61000-4-2:2009, EN 61000-4-3:2006 incl A1:2008 & A2:2010, EN 61000-4-4:2012, EN 61000-4-5:2012, EN 61000-4-6:2014, EN 61000-4-11:2010
		WEEE Directive 2012/19/EU RoHS Directive 2011/65/EU
Guarantee	Period	1 year warranty

The manufacturer reserves the right to amend the specification and therefore the information in this document may be subject to change.

APPENDICES

A1   ASCII – American Standard Code for Information Interchange

Value	Hex	Character	Value	Hex	Character	Value	Hex	Character	Value	Hex	Character
0	00H	NUL	16	10H	DLE	32	20H	SP	48	30H	0
1	01H	SOH	17	11H	DC1	33	21H	!	49	31H	1
2	02H	STX	18	12H	DC2	34	22H	"	50	32H	2
3	03H	ETX	19	13H	DC3	35	23H	#	51	33H	3
4	04H	EOT	20	14H	DC4	36	24H	$	52	34H	4
5	05H	ENQ	21	15H	NAK	37	25H	%	53	35H	5
6	06H	ACK	22	16H	SYN	38	26H	&	54	36H	6
7	07H	BEL	23	17H	ETB	39	27H	'	55	37H	7
8	08H	BS	24	18H	CAN	40	28H	(	56	38H	8
9	09H	HT	25	19H	EM	41	29H	)	57	39H	9
10	0AH	LF	26	1AH	SUB	42	2AH	*	58	3AH	:
11	0BH	VT	27	1BH	ESC	43	2BH	+	59	3BH	;
12	0CH	FF	28	1CH	FS	44	2CH	,	60	3CH	<
13	0DH	CR	29	1DH	GS	45	2DH	-	61	3DH	=
14	0EH	SO	30	1EH	RS	46	2EH	.	62	3EH	>
15	0FH	SI	31	1FH	US	47	2FH	/	63	3FH	?

Value	Hex	Character	Value	Hex	Character	Value	Hex	Character	Value	Hex	Character
64	40H	@	80	50H	P	96	60H	`	112	70H	p
65	41H	A	81	51H	Q	97	61H	a	113	71H	q
66	42H	B	82	52H	R	98	62H	b	114	72H	r
67	43H	C	83	53H	S	99	63H	c	115	73H	s
68	44H	D	84	54H	T	100	64H	d	116	74H	t
69	45H	E	85	55H	U	101	65H	e	117	75H	u
70	46H	F	86	56H	V	102	66H	f	118	76H	v
71	47H	G	87	57H	W	103	67H	g	119	77H	w
72	48H	H	88	58H	X	104	68H	h	120	78H	x
73	49H	I	89	59H	Y	105	69H	i	121	79H	y
74	4AH	J	90	5AH	Z	106	6AH	j	122	7AH	z
75	4BH	K	91	5BH	[	107	6BH	k	123	7BH	{
76	4CH	L	92	5CH	\	108	6CH	l	124	7CH		
77	4DH	M	93	5DH	]	109	6DH	m	125	7DH	}
78	4EH	N	94	5EH	^	110	6EH	n	126	7EH	~
79	4FH	O	95	5FH	_	111	6FH	o	127	7FH	DEL

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A2   Guarantee

System components are warranted for a period of twelve (12) months from the original date of purchase, against defective materials and workmanship. In the event that warranty service is required, please contact Richard Paul Russell Ltd.

This warranty is only valid if, when warranty service is required, a full description of the fault is provided and presented with the original invoice, and the serial number(s) on the component has not been defaced.

Richard Paul Russell Ltd's liability is limited to items of its own manufacture, and it does not accept liability for any loss resulting from the operation or interpretation of the results from this equipment.

This warranty covers none of the following:

- Periodic check ups, maintenance and repair or replacement of parts due to normal wear and tear.
- Cost relating to transport, removal, or installation of the component.
- Misuse, including failure to use the component for its normal purpose or incorrect installation.
- Damage caused by Lightning, Water, Fire, Acts of God, War, Public Disturbances, incorrect supply voltage or any other cause beyond the control of Richard Paul Russell Ltd.
- Units which have been repaired or units altered by a party other than Richard Paul Russell Ltd's employees or agents without prior written consent from Richard Paul Russell Ltd.

In no event shall Richard Paul Russell Ltd be liable under any circumstances for any direct, indirect or consequential damages, any financial loss or any lost data contained in any product (including any returned product), regardless of the cause of loss. Richard Paul Russell Ltd products are not warranted to operate without failure. Richard Paul Russell Ltd's products must not be used in life support systems or other application where failure could threaten injury or life.

The Customers statutory rights are not affected by this warranty. Unless there is national legislation to the contrary, the rights under this warranty are the customer's sole rights and Richard Paul Russell Ltd shall not be liable for indirect or consequential loss or damage to any other related equipment or material.

A3   Declaration of Conformity

EC DECLARATION OF CONFORMITY
ACCORDING TO COUNCIL DIRECTIVE
2014/30/EC

We, Richard Paul Russell Limited of   The Lodge
                                             Unit 1 Barnes Farm Business Park
                                             Barnes Lane
                                             Milford-on-Sea
                                             Hampshire SO41 0AP
                                             United Kingdom

Declare under our sole responsibility that the product:

SpaceLogger.W100

Manufactured by: Richard Paul Russell Limited

to which this declaration relates, is in conformity with the protection requirements of Council Directive 2014/30/EU on the approximation of the laws relating to electromagnetic compatibility. This Declaration of Conformity is based upon compliance of the product with the following harmonised standards:

Emissions	EN 55032:2015 CISPR 32:2015, Class B
	EN 60945:2002 CISPR 16-1:1999, Class B
	EN 61000-3-2:2014 Class A
	EN 61000-3-3:2013
Immunity	EN 55024:2010 | EN 61000-4-2:2009
	EN 61000-4-3:2006 incl A1:2008 & A2:2010
	EN 61000-4-4:2012, EN 61000-4-5:2012
	EN 61000-4-6:2014, EN 61000-4-11:2010
WEEE Directive	2012/19/EU
RoHS Directive	2011/65/EU

Signed by:

R.P.Russell

Richard Paul Russell – Director

Date of Issue: 1 August 2018

Place of Issue The Lodge
                Unit 1 Barnes Farm Business Park
                Barnes Lane
                Milford-on-Sea
                Hampshire SO41 0AP
                United Kingdom

CE

UK DECLARATION OF CONFORMITY

We, Richard Paul Russell Limited of
The Lodge
Unit 1 Barnes Farm Business Park
Barnes Lane
Milford-on-Sea
Hampshire SO41 0AP
United Kingdom

Declare under our sole responsibility that the product: **SpaceLogger.W100**

Manufactured by: Richard Paul Russell Limited

to which this declaration relates, is in conformity with the protection requirements of Electromagnetic Compatibility Regulations 2016 on the approximation of the laws relating to electromagnetic compatibility.
This Declaration of Conformity is based upon compliance of the product with the following harmonised standards:

Emissions	BS EN 55032:2015 CISPR 32:2015, Class B
	BS EN 60945:2002 CISPR 16-1:1999, Class B
	BS EN 61000-3-2:2014 Class A
	BS EN 61000-3-3:2013
Immunity	BS EN 55024:2010
	BS EN 61000-4-2:2009
	BS EN 61000-4-3:2006 incl A1:2008 & A2:2010
	BS EN 61000-4-4:2012, BS EN 61000-4-5:2012
	BS EN 61000-4-6:2014, BS EN 61000-4-11:2010
WEEE	The Waste Electrical and Electronic Equipment Regulations 2013 (as amended)
RoHS	The Restriction of the Use of Certain Hazardous Substances in Electrical and Electronic Equipment Regulations 2012 (as amended)

Signed by:

R.P.Russell

Richard Paul Russell – Director

Date of Issue: 30 November 2020

Place of Issue:
The Lodge
Unit 1 Barnes Farm Business Park
Barnes Lane
Milford-on-Sea
Hampshire SO41 0AP
United Kingdom

UK
CA

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FC SpaceLogger.W100 has been tested for compliance with FCC standards FCC/CFR 47: Part 15. This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

The user is cautioned that changes or modifications not approved by the responsible party could void the user's authority to operate the equipment, in line with the FCC guidelines.

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy, and if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

To satisfy FCC RF Exposure requirements for mobile and base station transmission devices, a separation distance of 20 cm or more should be maintained between the antenna of this device and persons during operation. To ensure compliance, operation at closer than this distance is not recommended.

The antenna(s) used for this transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.

A4   WEEE (Waste, Electrical and Electronic Equipment) Statement

The WEEE directive places an obligation on all EU-based manufacturers and importers to take-back electronic products at the end of their useful life. Richard Paul Russell Ltd accepts its responsibility to finance the cost of treatment and recovery of redundant WEEE in accordance with the specific WEEE recycling requirements.

This symbol on the product or on its packaging indicates that, within the EU, the product must NOT be disposed of with normal household waste. Instead, it is the end user's responsibility to dispose of their waste equipment by arranging to return it to a designated collection point for the recycling of WEEE. By separating and recycling waste equipment at the time of disposal, natural resources will be conserved and it will be ensured that the equipment is recycled in a manner that protects human health and the environment. For more information about where you can send your waste equipment for recycling, please contact your local council office or visit our website www.r-p-r.co.uk.

A5   RoHS Statement
(The Restriction of the Use of Certain Hazardous Substances in Electrical and Electronic Equipment Regulations 2006)

SpaceLogger.W100 has been designed to comply with EU Directive 2011/65/EU on RoHS regulations. The unit is assembled from compliant components.

RoHS is often referred to as the lead-free directive, but it restricts the use of the following six substances:
- Lead (Pb)
- Mercury (Hg)
- Cadmium (Cd)
- Hexavalent chromium (Cr6+)
- Polybrominated biphenyls (PBB)
- Polybrominated diphenyl ether (PBDE)

PBB and PBDE are flame retardants used in some plastics.